those in the upper pond are small and thin and never in very good condition.

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GROWTH OF FISH IN DIFFERENT WATERS

Referring to a note on the Yellow Perch published in *Copeia,* No. 88, the information in regard to the two waters is not sufficient to warrant drawing any conclusions. Generally speaking, it would naturally be expected that the pond of larger area would produce fish of the largest growth.

The variation in the maximum size of various species of fish in different waters has never been fully accounted for. It often happens that a chain of lakes inhabited by brook trout yields a maximum growth of a pound or more in one lake; in another lake, perhaps, a half-a-pound, and in a third lake of perhaps larger area than the other two trout in great abundance of a size seldom exceeding a quarter-of-a-pound in weight. This variation applies also to many other species. It has been my personal experience on one trout pond of about 35 acres with a maximum growth varying from year to year according to the number of fish inhabiting the pond. In other words, if the pond was fished hard, thus reducing the total number of adult fish which reached the spawning grounds, the average weight of the mature fish was quite a little more than in years when the pond was not fished so hard and larger numbers of mature fish reached the spawning grounds. In this particular case the fish when ascending to spawn were trapped and it was possible for a number of years to record the number of mature fish ascending a tributary stream for the spawning function as well as the average weight of the fish.

On general principles the abundance of food determines the maximum growth of fish in such a pond.

The perch are more versatile in their food habits

than most fresh-water species. I do not think that a suggestion that the perch in the big pond have "run out" due to inbreeding is correct. However, it may be true that where conditions do not promote large growth the fish become mature while small and it may be that the offspring of such fish would naturally be stunted, but not necessarily so. It has been my experience that fish of small growth under certain conditions, when transferred to a larger lake, eventually attain a much larger size. This is particularly true in the case of reservoired lakes. In other words, if the pond referred to should be raised several feet so that it covers two or three times the present area, I should naturally expect that after two or three years the perch would average very much larger than they do now. Pearse has made some very valuable contributions on this subject one of which appears in a scientific monthly of an early date in which is a popular contribution covered by a more serious and complete report published in the Bulletin of the U. S. Bureau of Fisheries for 1917-1918. In that report he compares two lakes, one of which was much deeper and of larger area than the other. In the particular instances coming under his observation he concluded that the deep lake is a better habitat than the shallow one for Yellow Perch and attributes a small maximum size to the fact that there are very diverse conditions which prevent growth. In the lakes investigated by him food does not appear to be as important as other factors, such as shallowness, exposure to the wind, etc. In other words, the shallow lake being exposed to the winds oftentimes prevents the perch from having access to their natural feeding grounds, while on a deeper lake this species can go into deep water below the stratum affected by the winds and adjust itself to the deep water conditions.

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